

WHAT IS CLAIMED IS:

1. A voltage block and color change apparatus for a waterborne paint bell applicator comprising;
 - 5 a bell applicator having a paint receptacle and being movable to and from a docking position;
 - a paint canister in said bell applicator connected to said paint receptacle;
 - a paint filling station; and
 - at least two paint injectors attached to said filling station, each of said paint
 - 10 injectors being adapted to be connected to a different color paint, said filling station being actuatable to move each of said paint injectors selectively to the docking position for engagement with said paint receptacle for filling said paint canister with paint.
- 15 2. The apparatus according to claim 1 wherein said paint injectors are mounted in a circular pattern spaced about a rotatable annular manifold and are rotated to the docking position.
3. The apparatus according to claim 2 including a shroud washer positioned in a
- 20 center opening of said manifold for receiving said bell applicator.
4. The apparatus according to claim 2 including a shroud washer positioned beside said manifold for receiving said bell applicator.
- 25 5. The apparatus according to claim 1 wherein said paint injectors are mounted in a linear pattern on a manifold and are moved along a linear path to the docking position.
6. The apparatus according to claim 5 wherein said paint injectors are mounted
- 30 in two rows facing a common axis and the docking position is on the common axis.

7. The apparatus according to claim 6 wherein said paint injectors are each mounted for reciprocating movement along an associated interface axis.

8. The apparatus according to claim 1 wherein said paint injectors are mounted
5 in a circular pattern spaced about an annular manifold and said manifold is movable toward and away from the docking position.

9. The apparatus according to claim 1 including a fluid control valve connected to said paint receptacle, said valve having a stationary portion and a moving portion, said
10 stationary and moving portions being engaged for supplying cleaning fluid to clean said paint receptacle and being disengaged for providing voltage block protection during a painting operation of said bell applicator.

10. A paint applicator comprising;
15 a bell applicator enclosing a paint canister containing a piston slidably disposed in a cylinder for receiving and dispensing paint;
a robot wrist attached to said paint applicator;
a robot arm attached to said robot wrist; and
a means for moving said piston in said cylinder to dispense paint from said
20 cylinder and to refill said cylinder with paint, said means for moving being remotely located from said bell applicator and said robot wrist and being coupled to said piston by a flexible rotary shaft.

11. The paint applicator according to claim 10 wherein said means for moving
25 said piston includes a servomotor mounted in said robot arm and wherein said flexible rotary shaft extends from and is rotated by said servomotor, said shaft extending through said robot arm and said robot wrist to a ball screw driving said piston.

12. A paint applicator comprising;
30 a bell applicator enclosing a paint canister containing a piston slidably disposed in a cylinder for receiving and dispensing paint;
a robot wrist attached to said paint applicator;

a robot arm attached to said robot wrist; and

a servomotor for moving said piston in said cylinder to dispense paint from said cylinder and to refill said cylinder with paint, said servomotor disposed within a housing of said bell applicator and connected to an electrical wire bundle, said bundle having electrical wires disposed within at least one tube, said bundle extending from said servomotor through said robot wrist and through said robot arm and adapted to be connected to a power source, and said at least one tube and said housing being gas pressured.

10 13. The paint applicator according to claim 12 including an air supply line connected to said robot arm for supplying pressured air to said housing through said at least one tube.

15 14. The paint applicator according to claim 13 including at least one of a purge pressure switch mounted in said housing for measuring a pressure of the air in said housing and a maintenance pressure switch mounted in said housing for measuring a pressure of the air in said housing.

20 15. The paint applicator according to claim 13 including at least one of a purge pressure relief valve mounted in said housing for allowing a predetermined amount of the air in said housing to purge outside said housing and a safety relief valve mounted in said arm to protect from an overpressure condition.

25 16. A voltage block and color change apparatus for a waterborne paint bell applicator comprising;

a bell applicator having a paint receptacle and being movable to and from a docking position;

a paint canister in said bell applicator connected to said paint receptacle;

a paint filling station;

30 at least two paint injectors movably attached to said filling station for individual movement toward and away from the docking position along an interface

axis, said at least two paint injectors being selectively movable to align a selected one with the interface axis; and

a firing cylinder actuatable to move said selected one paint injector along the interface axis to the docking position for engagement with said paint receptacle for filling said paint canister with paint.

5

17. The apparatus according to claim 16 including a paint injector valve in each of said at least two paint injectors and means for sensing an absence of said bell applicator at the docking position to prevent opening of said paint injector valves.

10

18. The apparatus according to claim 16 wherein each of said at least two paint injectors is mounted on an associated slide movable on said filling station.

19. The apparatus according to claim 18 including a return spring for moving each said slide and said associated paint injector away from the docking position.

15

20. The apparatus according to claim 16 including a plurality of paint injectors mounted in two rows movable relative to the docking position, said rows forming a generally V-shaped assembly.

20